0022973
0022972 (c)

000025391

EMERGENCY PREPAREDNESS CONTINGENCY PLAN

RESPONSE TO FAILURE AT RETENTION POND DAM

Emergency Preparedness Program

August 14, 1989

TABLE OF CONTENTS

I. INTRODUCTION

Walnut Creek delivers raw water to Great Western Reservoir, a drinking water reservoir for the City of Broomfield. Woman Creek delivers raw water to Standley Lake, a drinking water reservoir for the Cities of Westminster, Thornton, and Northglenn. Both these streams have headwaters on Rocky Flats Plant property. The Rocky Flats Plant protects these reservoirs from environmental insult associated with precipitation runoff from the facility through the use of retention ponds.

Unplanned release of waters from these retention ponds is a credible emergenc at the Rocky Flats Plant. Two failure modes are possible: release of water over the dam spillway, or failure of the dam. Such uncontrolled release is most likely when the ponds are maintained at high holding levels.

This document summarizes our contingency plan for response to an unplanned release of water from runoff retention ponds at the Rocky Flats Plant.

II. DAM PREPAREDNESS WORKING GROUP

A Dam Preparedness Working Group was established on April 4, 1989 to review Rocky Flats' readiness to respond to any failure of B-5 or other storm water retention ponds. The Working Group was reconvened on August 11, 1989 to review contingeny plans for response to A-4, B-5, and C-2 dams.

Membership:

C. W. Barrick	HS&E Emergency Preparedness Coordinator
C. J. Bogart	Shift Superintendent
G. W. Coles	Utilities
N. M. Daugherty	Environmental Management
P. T. Etchart	Communications
C. R. Hodgin	Emergency Preparedness
J. A. Jensen	Emergency Preparedness
J. R. Marschall	Plant Services
L. J. McGovern	Facilities Engineering
L. M. Morales	Emergency Preparedness
A. J. Petrocchi	Emergency Preparedness
C. L. Sundblad	Environmental Management
G. Underberg	Department of Energy

III. HISTORY

* Dams built 1980 for storm water runoff retention.

* Built for short term retention at 10% of capacity.

* Built to retain 100 year precipitation event for 3 days before release.

* U.S. Army Corps of Engineers has defined a standard safety factor for dams: 1.0 is threshold for failure; less than 1.0, failure likely; greater than 1.0, failure not likely (dam is "safe").

* Safety factor generally applied for "acceptable public risk" in construction and operation of dams is 1.5.

* Dams designed and built to a safety factor of 1.4.

* Corps of Engineers consider dams "low hazard" due to low potential for impacts from failure.

* B-5 dam partially failed in 1983. Pond was allowed to fill to "near capacity" and remain full for a "long time." Water was quickly drawn down, leaving dam saturated and without support. Dam slumped back into pond.

* B-5 dam was rebuilt in 1983 and made stronger. Safety factor remained 1.4.

IV. TOXIC LOADINGS

1. A-4 Pond, B-5 Pond, C-2 Pond

   A. Plutonium: No Pu in water.

      Pu levels in sediment below 0.1 pCi/g. Number based on measurements made by G. H. Setlock in mid-1980's. Environmental Management will produce sampling records as required per G. H. Setlock.

      Total Pu loading for pond sediments has not been calculated. Environmental Management will provide data as required during a response per F. D. Hobbs.

   B. Other:

      No other hazardous/toxic substances known to exist in water. Possible detectable (but non-hazardous) levels of several substances in sediment per C. W. Barrick: Tritium, Th, Be, Li, Carbon Tetrachloride, Perchloroethylene, Tetrachloroelthylene, Trichloroethylene, Trichloroethane, PCB's, dioctylphtholate nitrates, Na, K-40, Co, Ni, V, Pb, Zn, U-235, U-233, U-234, U-238, Am. Release of these substances is regulated under our NPDES permit. No sampling has been conducted, but may occur in the future as part of RCRA Program. Environmental Management will provide data as required during a response per F. D. Hobbs.

2. Walnut Creek Drainage and Woman Creek Drainage

   A. Plutonium:

      Some Pu exists along Walnut Creek drainage between A-4 and B-5 dams and Great Western Reservoir, result of historical deposits. Some Pu exists along Woman Creek drainage between C-2 dam and Standley Lake, result of historical deposits.

      Sampling conducted by Environmental Control approximately 1973. G. H. Setlock recommends against using data due to imprecise analysis techniques used then.

      No sampling has been conducted, but may occur in the future as part of RCRA Program. Environmental Management will provide data as required during a response per F. D. Hobbs.

   B. Other:

      No other hazardous/toxic substances known to exist in water. Possible detectable (but non-hazardous) levels of several substances in sediment per C. W. Barrick: Tritium, Th, Be, Li, Carbon Tetrachloride, Perchloroethylene, Tetrachloroelthylene,

Trichloroethylene, Trichloroethane, PCB's, dioctylphtholate nirates, Na, K-40, Co, Ni, V, Pb, Zn, U-235, U-233, U-234, U-238, Am. Sampling may have been conducted as part of RCRA Part B Environmental Assessment or Risk Assessment. Environmental Management will provide data as required during a response per F. D. Hobbs.

3. Great Western Reservoir and Standley Lake

A. Plutonium:

No plutonium exists in Great Western Reservoir water. Monthly Environmental Monitoring Report details monitoring data.

No plutonium exists in Standley Lake Reservoir water. Monthly Environmental Monitoring Report details monitoring data.

Plutonium is stably bound to sediments at the bottom of Great Western Reservoir, concentrated approximately 2 ft. below the sediment surface. Sediment loadings and total inventory are unavailable but will be provided by Environmental Nanagement in event of emergency per F. D. Hobbs.

Plutonium is stably bound to sediments at the bottom of Standley Lake Reservoir, concentrated approximately 2 ft. below the sediment surface. Sediment loadings and total inventory are unavailable but will be provided by Environmental Nanagement in event of emergency per F. D. Hobbs.

B Other:

Rocky Flats knows of no other toxic substances in water or sediment of Great Western Reservoir City of Broomfield regulated under its own NPDES permit

Rocky Flats knows of no other toxic substances in water or sediment of Standley Lake City of Westminster regulated under its own NPDES permit.

V. FAILURE MODES

Following failure modes identified for A-4, B-5, and C-2 dams:

* Overflow of spillway
* Seepage
* Slow leak
* Partial collapse
* Catastrophic failure

Slumping of dams or hillside backwards (upstream) into B-5 pond. Dams are porous - water is constantly seeping through and flowing on down drainage. Seepage mainly under dams with no visible surface flow. Seepage will increase as water level rises and dams saturate.

Partial collapse is most likely failure mode.

Catastrophic (rapid) failure of entire or most of dams remain a possibility.

Slumping of dam faces backwards into A-4, B-5, or C-2 ponds could occur if water is drawn down too rapidly (faster than about 8 in./day).

VI. PROBABLE FAILURE SEQUENCE

1. Release Over Spillway:

   * Precipitation causes runoff to fill pond to spillway level.
   * Water overtops spillway and flows into creek.
   * Water flows down creek, off-site and into reservoir.
   * No erosion or scouring of pond or creek bed.
   * Walnut Creek-water flows into diversion ditch and around Great Western Reservoir.
   * Woman Creek-water flows directly into Standley Lake.

2. Partial Dam Failure - A-4 or B-5 Dam:

   * Cracks appear in dam surfaces.
   * Cracks extend, widen, move.
   * Face of dam begins slumping
   * Approximately 50% breach of dam occurs.
   * Outlet and valve are blocked by material.
   * Limited release during initial phase - slumped portion of dam blocks flow.
   * Slumped portion of dam erodes over about two-hour period, allowing rapid release.
   * Approximately 20% of A-4 or B-5 pond water released through breach.
   * Water flows down Walnut Creek drainage, causing erosion and scouring of creek bed.
   * Water reaches Indiana Street in 2-3 minutes.
   * Water erodes and weakens foundation of Indiana Street but probably would not overtop and carry away the road. Erosion most likely near culvert.
   * Water backs up west of Indiana Street in flat area.
   * Water flows through culvert under Indiana Street with considerable "head."

* Water flows to diversion structure on Walnut Creek just east of culvert.

* Some water is diverted into diversion ditch causing erosion along the unlined ditch.

* Water flow is too great for diversion ditch to accomodate. Some water overtops diversion structure and flows directly into Great Western Reservoir, causing some scouring of reservoir bottom.

* Water flow is too great for some curves in diversion ditch. Water flows out of diversion ditch and into fields toward Great Western Reservoir.

3. Partial Dam Failure - C-2:

* Cracks appear in dam surface.

* Cracks extend, widen, move.

* Face of dam begin slumping.

* Approximately 50% breach of dam occurs.

* Outlet and valve are blocked by material.

* Limited release during initial phase - slumped portion of dam blocks flow.

* Slumped portion of dam erodes over about two-hour period, allowing rapid release.

* Approximately 20% of C-2 pond water released through breach.

* Water flows down Woman Creek drainage, causing erosion and scouring of creek bed.

* Water reaches Indiana Street in 5-10 minutes.

* Water erodes and weakens foundation of Indiana Street but probably would not overtop and carry away the road. Erosion most likely near culvert.

* Water backs up west of Indiana Street in flat area.

* Water flows through culvert under Indiana Street with considerable "head."

* Water flows down Woman Creek drainage east of Indiana causing erosion and scouring of creek bed.

* Water flows into Standley Lake, causing some scouring of reservoir bottom.

VII. CONSEQUENCES

1. Physical Insults

   * A-4, B-5, or C-2 Dam: Partial to total collapse

   * Walnut Creek or Woman Creek Drainage: Erosion, deposited debris

   * Indiana Street: Erosion, weakening of road bed - breach unlikely but possible

   * Great Western Reservoir or Standley Lake: No potential for damage to dam

2. Safety Insults

   * A catastrophic failure of A-4, B-5 or C-2 dam could wash away and possibly drown the following:

     - Personnel working the release valve at the foot of the dam,

     - Personnel working in the creek drainage below the dam,

     - Persons located in the creek drainage adjacent to or downstream of culvert beneath Indiana Street.

3. Environmental Insults

   A. Plutonium:

   Low levels delivered to reservoir from scouring of sediments from pond, creek drainage, and reservoir sediments. Environmental Management will make prediction of concentrations in raw Great Western Reservoir water at time of response per F. D. Hobbs.

   B. Atrazine:

   Low, possibly detectable levels delivered to reservoir. Levels at all locations would be below drinking water standards.

   C. Other:

   Depends on inventories of any other substances in sediments of pond and creek drainage. Analysis will be made by Environmental Management at time of response per F. D. Hobbs.

1981 Revised 1/30/83 and 1/30/84

STREAM CLASSIFICATIONS and WATER QUALITY STANDARDS

3 Page 12 of 27

Big Dry Creek

Segment Description	CLASSIFICATIONS: HIGH QUAL CLASS 1	HIGH QUAL CLASS 2	REC CLASS 1	REC CLASS 2	AQUATIC LIFE CL 1 COLD	AQUATIC LIFE CL 1 WARM	AQUATIC LIFE CL 2 COLD	AQUATIC LIFE CL 2 WARM	WATER SUPPLY	AGRICULTURE	NUMERIC STANDARDS: PHYSICAL and BIOLOGICAL	INORGANIC mg/l	METALS mg/l		TEMPORARY MODIFICATIONS and QUALIFIERS
...tem of Big Dry Creek, including all tributaries, ..., and reservoirs, from the source to the con-...nce with the South Platte River, except for the ...ific listing in Segment 2, 3, and 4				X				X		X	D O = 5 0 mg/l pH = 6 5 - 9 0 Fecal Coliforms = 2000/100 ml				
...a, Lake			X			X			X	X	D.O = 5 0 mg/l pH = 6 5 - 9 0 Fecal Coliforms = 200 /100 ml	NH_3 = 0 5, total NH_3 = 0 06, unionized Residual Cl_2 = 0 003 Cyanide (free) = 005 S as H_2S = 0 002 undis Boron = 0 75 Nitrite (NO_2) = 0 5 Nitrate (NO_3) = 10 0 Chloride (Cl^-) = 250 0 Sulfate (SO_4) = 250 0	Arsenic (As) = 0 05 Cadmium (Cd) = 0 0004 Chromium (tri) = 0 05 Chromium (hex) = 0 025 Copper (Cu) = 0 005 Lead (Pb) = 0 004 Iron (Fe,sol) = 0 3 Manganese (Mn,sol)=0 05	Mercury (Hg) = 0 00005 Nickel (Ni) = 0 05 Selenium (Se) = 0 01 Silver (Ag) = 0 0001 Zinc (Zn) = 0 05 Iron (Fe,tot) = 1 0 Manganese (Mn,tot)=1 0	
t Western Reservoir			X			X			X		D O = 5 0 mg/l pH = 6 5 - 9 0 Fecal Coliforms = 200/100 ml	NH_3 = 0 06, unionized Residual Cl_2 = 0 003 Cyanide (free) = 005 S as H_2S = 0 002 undis Boron = 0 75 Nitrite (NO_2) = 0 5 Nitrate (NO_3) = 10 0 Chloride (Cl^-) = 250 0 Sulfate (SO_4) = 250 0	Arsenic (As) = TVS Cadmium (Cd) TVS Chromium (tri) = TVS Chromium (hex) = TVS Copper (Cu) = TVS Lead (Pb) = TVS Iron (Fe,sol) = TVS Manganese (Mn sol) = TVS (ACUTE AND CHRONIC STANDARDS ADOPTED)	Mercury (Hg) = TVS Nickel (Ni) = TVS Selenium (Se) = TVS Silver (A_g) = TVS Zinc (Zn) TVS Iron (F_e,tot) = TVS Manganese (Mn,tot) = TVS	
...ributaries to Standley Lake and Great Western ...rvoir (added segment)				X				X		X	D O = 5 0 pH = 6 5 - 9 0 units Fecal Coliforms = 2000/100 ml	Cyanide (free)=0 2 S as H_2S = 05 Nitrite (NO_2)= 1 0 Nitrate (NO_3)= 10 0 Chloride (Cl^-) = 250 Sulfate (SO_4)=250 Boron = 0 75	As(ac)= 0 05 Cd(ac)= 0 01 CrIII(ac)= 0 05 CrVI(ac)= 0 05 Cu(ch)=0 2 Fe(ch)=0 3(dis) Pb(ac)= 0 05	Mn(ch)= 0 05(dis) Hg(ac)= 0 002 Se(ac)=0 01 Ag(ac)=0 05 Zn(ch)= 2 0 Ba(ch) = 0 1 Ni(ch) = 0 2	See Attached Tables A,B,C and D for additional Standard for Segment 4

Table A

WATER SUPPLY SEGMENTS

CARCINOGENIC ORGANIC CHEMICALS (4)

Parameter	CAS No.	Standard (1) (ug/l)	Detection Levels (ug/l) GC	GC/MS
Aldrin	309-00-2	0.002 (I)	0.1	
Benzene	71-43-2	5		5
Benzidine	92-87-5	0.0002 (I)		50
Carbon Tetrachloride	56-23-5	5		5
Chlordane	57-74-9	0.03 (I)		10
Chloroethyl Ether (BIS-2)	111-44-4	0.03 (I)		10
DDT	50-29-3	0.1 (I)		10
Dichloroethane 1,2	107-06-2	5		5
Dichloropropane 1,2	78-87-5	0.56 (L)		6
Dieldrin	60-57-1	0.002 (I)		10
Dioxin (2,3,7,8-TCDD	1746-01-6	2.2 x 10 -7 (L)		0.01 (3) 3 (5)
Diphenylhydrazine 1,2	122-66-7	0.05 (I)		20
Heptachlor	76-44-8	0.008 (L)	0.1	
Heptachlor Epoxide	1024-57-3	0.004 (L)	0.1	
Hexachlorobenzene	118-74-1	0.02 (L)		10
Hexachlorocyclohexane (Lindane)	58-89-9	4	0.10	

Table A (cont.)

WATER SUPPLY SEGMENTS

CARCINOGENIC ORGANIC CHEMICALS (4)

Parameter	CAS No.	Standard (1) (ug/l)	Detection Levels (ug/l) GC	GC/MS
Polychlorinated Biphenyls (PCBs)	1336-36-3	0.005 (I)	0.5	
Toxaphene	8001-35-2	5	1.0	
Trichloroethylene	79-01-6	5		5
Trichlorophenol 2,4,6	88-06-2	2.0 (I)		10
Trihalomethanes (total) (2)		100		5
Vinyl Chloride	75-01-4	2		2

(1) Standards are based on the MCL for drinking water unless otherwise noted.
(2) Total trihalomethanes are considered the sum of the concentrations of bromodichloromethane (CAS NO. 75-27-4), dibromochloromethane (CAS No. 124-48-1), tribromomethane (bromoform, CAS NO. 75-25-2) and trichloromethane (chloroform, CAS NO. 67-66-3).
(3) For permit issuance and compliance purposes use Test Methods for Evaluating Solid Wastes, Vol. 1B, EPA, November 1986, Method 8280.
(4) . Organic chemicals not on this partial list are covered under section 3.1.11 (1) (d).
(5) For routine surveillance and screening using EPA Method 625

(I) Based on 10^{-6} Cancer risk from EPA Integrated Risk Information System
(L) Based on EPA life time drinking water health advisory.

GC Gas Chromatography (Pesticides EPA-Method 508/608)
GC/MS Gas Chromatography / Mass Spectrometry (Methods 624 and 625)
CAS No. Chemical Abstracts Service identification number.

Table B

WATER SUPPLY SEGMENTS

NON-CARCINOGENIC ORGANIC CHEMICALS (3)

Parameter	CAS No.	Standard (ug/l)	Detection Levels (ug/l) GC	GC/MS
Aldicarb	116-06-3	10 (L)	10 (2)(1)	
Carbofuran	1563-66-2	36 (L)		10
Chlorobenzene	108-90-7	300 (L)		10
Dichlorobenzene 1,2	95-50-1	620 (L)		10
Dichlorobenzene 1,3	541-73-1	620 (L)		10
Dichlorobenzene 1,4	106-46-7	75 (M)		10
Dichloroethylene 1,1	75-35-4	7 (M)		5
Dichloroethylene 1,2-Cis	156-59-2	70 (L)		5
Dichloroethylene 1,2-Trans	156-60-5	70 (L)		5
Dichlorophenol 2,4	120-83-2	21 (L)		10
Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	100 (M)	0.1	
Endrin	72-20-8	0.2 (M)	0.1	
Ethylbenzene	100-41-4	680 (L)		5
Hexachlorobutadiene	87-68-3	14 (I)		10
Hexachlorocyclopentadiene	77-47-4	49 (I)		10
Isophorone	78-59-1	1,050 (I)		10
Methoxychlor	72-43-5	100 (M)	0.1	
Nitrobenzene	98-95-3	3.5 (I)		10
Pentachlorobenzene	608-93-5	6 (I)		10

Table B (cont.)

WATER SUPPLY SEGMENTS

NON-CARCINOGENIC ORGANIC CHEMICALS (3)

Parameter	CAS No.	Standard (ug/l)		Detection Levels (ug/l) GC	GC/MS
Pentachlorophenol	87-86-5	200	(L)		50
Tetrachlorobenzene 1,2,4,5	95-94-3	2	(I)		10
Tetrachloroethylene	127-18-4	10	(L)		5
Toluene	108-88-3	2,420	(L)		5
Trichloroethane 1,1,1	71-55-6	200	(M)		5
Trichloroethane 1,1,2	79-00-5	28	(I)		5
Trichlorophenol 2,4,5	95-95-5	700	(I)		10
Trichlorophenoxypropionic Acid (2,4,5-TP)	93-72-1	10	(M)	0.05	

(1) PQL is based on Colorado Department of Health Laboratory's best professional judgment
(2) HPLC - High Pressure Liquid Chromatography PQL (Method 531.1)
(3) Organic chemicals not on this partial list are covered under section 3.1.11 (1) (d).
(M) Based on MCL for drinking water.
(L) Based on EPA life time drinking water health advisory.
(I) Based on reference dose from EPA Integrated Risk Information System (IRIS).

GC Gas Chromatography (Pesticides EPA-Method 508/608) (Herbicides AWWA-Method 509 EPA Method 515.1)
GC/MS Gas Chromatography / Mass Spectrometry (Methods 624 and 625)
CAS No. Chemical Abstracts Service identification number.

Table C

FISH AND WATER INGESTION STANDARDS

Parameter	Standard (ug/1)
Acrylonitrile	0.058
Aldrin	0.000074
Benzidine	0.00012
Chlordane	0.00046
Chloroform	0.19
Chloromethyl Ether (BIS)	0.0000037
DDT	0.000024
Dichlorobenzidine	0.01
Dieldrin	0.000071
Dioxin (2,3,7,8-TCDD)	0.000000013
Halomethanes	0.19
Heptachlor	0.00028
Hexachloroethane	1.9
Hexachlorobenzene	0.00072
Hexachlorobutadiene	0.45
Hexachlorocyclohexane, Alpha	0.0092
Hexachlorocyclohexane, Beta	0.0163
Hexachlorocyclohexane, Gamma	0.0186
Hexachlorocyclohexane, Technical	0.0123
Nitrosodibutylamine N	0.0064
Nitrosodiethylamine N	0.0008
Nitrosodimethylamine N	0.0014
Nitrosodiphenylamine N	4.9
Nitrosopyrrolidine N	0.016
PCBs	0.000079
Polynuclear Aromatic Hydrocarbons	0.0028
→ Tetrachloroethane 1,1,2,2	0.17 PQL ± 1ppb
Tetrachloroethylene	0.8
Trichloroethane 1,1,2	0.6
Trichlorophenol 2,4,6	1.2

0391m/0025m

From EPA "Gold Book"

Table D

RADIONUCLIDE STANDARDS

Parameter	Picocuries per Liter
Americium 241	30
Curium 244	60
Neptunium 237	30
Plutonium 241	1,000
Plutonium 242	30
Uranium (total of all isotopes)	40

Also, note that the following radionuclide standards have previously been adopted and are in effect for all state surface waters:

Parameter	Picocuries per Liter
Cesium 134	80
Plutonium 238, 239, and 240	15
Radium 226 and 228	5
Strontium 90	8
Thorium 230 and 232	60
Tritium	20,000

VIII. DETECTION/WARNING

Facilities Engineering Checking Integrity of Dams Every Day.

Most likely warning of catastrophic (rapid) failure of A-4, B-5, or C-2 dams would be observation of unusual water flow by Plant Protection personnel, personnel working in Walnut Creek or Woman Creek drainage, members of the public.

IX. CLASSIFICATION

Alert:

Failure of A-4, B-5, or C-2 Dam is IMMINENT BUT HAS NOT OCCURRED

OR

Uncontrolled release of water from A-4, B-5, or C-2 Pond HAS OCCURRED but is CONTROLLED ON SITE

OR

Uncontrolled release of water from A-4, B-5, or C-2 Pond to Plant Boundary is IMMINENT BUT HAS NOT OCCURRED

General Emergency:

A-4, B-5, or C-2 Dam HAS FAILED

OR

Uncontrolled flow of water from A-4, B-5, or C-2 Pond BEYOND PLANT BOUNDARY

X. NOTIFICATIONS

1. In Event of A-4, B-5, or C-2 Dam Failure

State Radiological Emergency Plan activated; standard notifications. REASON FOR RADIOLOGICAL PLAN: Unknown amounts of Pu and other radionuclides may be scoured from A-4, B-5, or C-2 pond sediments and carried off site.

2. Special Notifications

A. Response

* Jefferson County Sheriff's Department (Indiana Street Safety)
  277-0211

* City of Broomfield (Great Western Reservoir)
  466-3104

* Broomfield Water Treatment Plant (Great Western Reservoir)
  466-3104

* Colorado Department of Health (Discharge, Sampling)
  331-4812; 355-6252

* City of Westminster (Standley Lake)
  430-2400 x2462

* City of Northglenn (Standley Lake)
  450-8709

* City of Thornton (Standley Lake)
  538-7200

B. Information

* U. S. EPA, Region VIII (NPDES Discharge)
  293-1591

* U. S. Army Corps of Engineers, Omaha, NB (Dam management)
  866-3581 (Colorado Office of Engineer)

* State of Colorado Congressional Delegation

XI. DAM RESPONSE TEAM

A dam response team has been formed to provide support to Shift Superintendent in evaluating potential/actual failure of A-4, B-5, or C-2 dam:

NAME	ORGANIZATION	PHONE	PAGE	HOME PHONE
<u>Engineering</u>				
Leon McGovern	Facilities Eng.	4874	D-709	451-6721
Russ Applehans	Facilities Eng.	5434		427-7393
Jay Moore(A)	Facilities Eng.	5431		1-838-2764
Robert James(A)	Facilities Eng.	5006		1-776-9270
Dan Johnson	Woodward Clyde	694-2770		794-1898
Guy Tabor(A)	Woodward Clyde	694-2770		-
Dave Frasier(A)	Woodward Clyde	751-0741		-
<u>Environmental Management</u>				
Farrel Hobbs		7006		469-3247
Cindy Sundblad		5536		1-652-2830
Ralph Hawes		2582		424-5959 or 1-627-8409
<u>Emergency Preparedness</u>				
Reed Hodgin	Emerg. Prep.	7084	D-250	466-4926
Jim Jensen	Emerg. Prep.	4946	D-001 SC-612	1-776-7389
Loyd Turner	Sec. Admin.	2561	D-533	466-0351
<u>Utilities</u>				
Util Shift Coord		2915	R-501	
<u>DOE-RAO</u>				
Duty Officer			D-177	

(A)Indicates an alternate responder

XII. RESPONSE

1. Standby Monitoring

* 1/day engineering inspection by Facilities Engineering
* Precipitation forecasts by Emergency Preparedness
* Precipitation monitoring by Environmental Management

2. Shift Superintendent Activated and Responds to Scene If:

* Dam fails
* Heavy precipitation occurs
* Engineering inspection indicates increased risk of dam failure:
  - Cracks develop, lengthen, widen, deepen
  - Internal pressure increases significantly, rapidly, or accelerates (B-5 dam only)
  - Movement of dam noted
  - Slumping of dam face noted
  - etc.
* Needed in judgment of Shift Superintendent

3. Shift Superintendent Activates Dam Response Team If:

* Dam fails
* Engineering inspection indicates sufficient increased risk of dam failure
* Needed in judgment of Shift Superintendent
* Requested by Facilities Engineering, HS&E, or Emergency Preparedness

4. Shift Superintendent Directs/Manages Release of Water from A-4, B-5 or C-2 Dam If:

* Directed by Rockwell President or DOE-RFAO Manager
* Dam failure is IMMINENT

5. Shift Superintendent directs closures of Indiana and Notifies/Supports Jefferson County Sheriff's Department If:

* Dam fails,
* Dam failure is IMMINENT

6. Shift Superintendent Activates EOC If:

   * Dam fails

   * Engineering inspection indicates dam failure is IMMINENT

   * Needed in judgment of Shift Superintendent

   * Requested by DOE-RFAO Manager, Rockwell President, Crisis Management Team member, DOE-RFAO Staff Duty Officer

   * Note: Shift Superintendent directs Emergency Management Cadre to interplant from West Gate.

7. Emergency Preparedness Prepares all EOC Systems for Immediate Use If:

   * Dam fails

   * EOC is activated

   * Shift Superintendent determines that EOC activation is likely

8. HS&E Prepares to Conduct and Analyze Emergency Water Samples from Great Western Reservoir or Standley Lake If:

   * Dam fails

   * Shift Superintendent determines that dam failure is imminent

   * EOC is activated

9. HS&E Notifies Colorado Department of Health and Coordinates Split Water Sampling of Great Western Reservoir or Standley Lake If:

   * Dam fails

   * Planned release of water from A-4 pond, B-5 pond, or C-2 pond offsite to prevent imminent dam failure

   * Any unplanned release of A-4 pond, B-5 pond, or C-2 pond water to offsite

10. HS&E Collects and Analyses Emergency Water Samples from Great Western Reservoir or Standley Lake If:

    * Dam fails

    * Planned release of water from A-4 pond, B-5 pond, or C-2 pond offsite to prevent imminent dam failure

    * Any unplanned release of A-4, B-5, or C-2 pond water to offsite

XIII. RECOVERY

Not yet addressed